## REMARKS/ARGUMENTS

Reconsideration and allowance in view of the foregoing amendment and the following remarks are respectfully requested.

In the Examiner's final Official Action of August 21, 2008, claim 1 was rejected under 35 USC 103(a) as being unpatentable over Owen et al in view of Perry's Chemical Engineers' Handbook, Stine et al and Zenz. Applicant respectfully traverses this rejection.

On page 15 of the Examiner's Official Action, first paragraph, the Examiner notes that "the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art." Applicant completely agrees, but wishes to point out that it indeed must be considered what the teachings of the references would have suggested to the ordinary artisan.

In the present application, the Examiner has cited numerous references over the years. Presently, four references have been cited against Applicant's independent claim 1. How are these references correctly chosen so that some of their features might be considered a teaching leading to the claimed invention? What would the combined teachings of the references have suggested to those of ordinary skill in the art? Importantly, one must not just consider the references isolated teachings per se, because there would be no special reason to choose out of these references a particular structural combination unless the references themselves motivate the skilled artisan to select isolated characteristics thereof to reconstruct the invention. In the present case, it is respectfully submitted that the Examiner's combination of features from these various references necessarily has involved hindsight. Indeed, given the definition of the invention in claim 1, the Examiner knows what to look for and can pick and choose

among the teachings of the prior art in an effort to reconstruct the invention. But, as the CAFC has said, obviousness cannot properly be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. ACS Hospital Systems v. Montefiore Hospital, 221 USPQ 929, 933 (Fed. Cir. 1984). There must be a suggestion in the art relied upon to use what one reference discloses in or in combination with the disclosure of the other reference or references relied upon by the Examiner. In re Grabiak, 226 USPQ 870, 872 (Fed. Cir. 1986). While in recent Office Actions, the Examiner has referenced additional reasoning in support of his proposed prior art combinations, it is respectfully submitted that these teachings are not derived from the prior art but rather they are derived from explanations and arguments provided by Applicant in responding to prior Office Actions. The knowledge supplied by Applicant in prior responses to Office Actions is knowledge that one with ordinary skill in the art does not possess, but, rather, concepts and techniques developed by the inventor. In this regard, it can be seen in the record for this case that since 2003, Applicant has always contributed new knowledge to the file when Applicant corrected erroneous statements, concepts, and allegations contained in the Office Actions.

Indeed, the Examiner at first said that Applicant copied Owens' arrangement of joining the dip legs of different stages. Applicant called Examiner's attention to the fact that the first stage dip leg was inclined in Owen, different from Applicant's assembly where the second stage dip leg was inclined (slanted). The Examiner then produced the Stine reference and asserted that Applicant changed the arrangement of Owens' inclined first stage dip leg to that of Stine's, which had inclined dip legs on the second stage. In this regard, the Examiner has ignored the fact that the purpose of Stine's patent is to control pressures and this makes the Examiner's proposed arbitrary combination of an isolated characteristics of Stine with another reference (Owen) as a basis for obviousness nonsensical to the skilled artisan. This modification of Owen would only be made if one started with the results achieved in Applicant's invention and

then searched until one finds references that meet the various structural characteristics claimed by Applicant. In this respect, it is respectfully urged that it is improper for the Examiner to select isolated structural characteristics of Stine without a consideration to the purpose of the Stine structure, which would be taken into consideration by the skilled artisan and who would not take those structural characteristics effectively out of context and insert them into another system. It is not obvious for the skilled artisan in the art to select isolated characteristics from Owen and Stine and the theoretical Perry and theoretical Zenz to reconstruct Applicant's invention. The sheer number of references that the Examiner has had to rely upon to try to evidence obviousness of the relatively simple structure defined in Applicant's claim 1 underscores that the combination of structural components Applicant has claimed is novel and unobvious.

In the present case, Applicant did not invent and does not claim to have invented isolated structural components. Applicant did not re-invent a dip leg termination devoid of movable sealing parts. Rather, Applicant's inventive step was to apply such a termination to a cyclone separator system junction, and what is claimed is the system thus formed, which Applicant has discovered is remarkably more effective than the prior art as discussed in the Background of the Invention section of this application.

Discussions have been held during prosecution on a lot of variables, a lot of settings, conditions, positioning of pieces of equipment like junctions, relative distances, whether the first stage cyclone dip leg has to be vertical, etc. Also, on other aspects, such as whether Owens teaches open or closed terminations, temporary or not, discussions on whether Owen is applicable or not to negative cyclone systems, and whether Owens is silent or not on the distance between junction point and the distal end of the termination, not to mention a long list of Examiner references including handbooks and textbooks. Perry's handbook has comprehensive lists of types of cyclones and the Examiner was keen to select the type of equipment or reaction conditions so that it, combined with a well chosen patent, implies that Applicant's invention was obvious. In this regard, it is noted that during prosecution, the claims

were limited to the essential features of the invention in response to the Examiner's initial rejections. The amendments together with distinguishing remarks appear to have advanced prosecution but the Examiner's recasting of rejections was clearly based on the knowledge gleaned from Applicant's specification and arguments presented. In this regard, the increasing level of complexity of the references cited underscores the Examiner's increased understanding of the technology to which the invention relates. However, at each stage of prosecution, new grounds of rejection are made and for an expert, like the Examiner now seems to have become, everything "is obvious" but obviousness must be judged from the standpoint of one of one of ordinary skill in the art and not one who has derived, through numerous explanations and teachings, the knowledge of the inventor which led to the invention. With the knowledge base and understanding of the inventor, in hindsight the structure claimed may appear obvious, but to one of ordinary skill in the art that does not have a knowledge of Applicant's disclosure and claims, the claimed invention would not obviously have been derived from the numerous references the Examiner has cited.

In this respect, it is urged that the Examiner is taking advantage of the deep technical knowledge which Applicant has provided in our numerous and detailed arguments responsive to the Examiner's rejections, and having learned a lot from Applicant's explanations and analysis, the Examiner has now determined that everything requires only ordinary skill and is obvious. Applicant respectfully requests that the Examiner step back from the knowledge gleaned from Applicant and reevaluate whether one skilled in the art, having no knowledge of Applicant's claimed invention/disclosure, would in fact have "obviously" arrived at the invention specifically defined in Applicant's independent claim 1 from a review of the references cited. It is respectfully submitted that the Examiner should properly conclude that the claimed invention would not have been obvious to one of ordinary skill in the art from the disclosures he has cited.

With specific reference to certain of the Examiner's allegations in the present Office Action, Applicant offers the following additional explanations and arguments.

With reference to the Examiner's arguments from the second paragraph of page 3 to the first paragraph of page 4 – "why leg termination is of the open type", please consider the following:

Applicant respectfully disagrees with the Examiner's argument that Applicant simply changed the termination of the single leg to one of the open type only for a matter of sealing convenience. In the case of the embodiment of Figure 2 and claim 1 of the present application, the leg termination has to be of the open type so that the principle of communicating vessels can work between the dense phase of the fluidized bed 31, the single leg 26, the junction 25 of the legs of first and second stages, the first-stage cyclone leg 23 and second-stage cyclone leg 24, the first-stage cyclone 21 and second-stage cyclone 22, the first-stage cyclone inlet and the fluid phase (or gaseous phase) of the fluidized bed. The principle of communicating vessels with a level of catalyst inside of legs of cyclones above the level of the junction and both cyclones being of the negative pressure type (that is, the internal pressure of cyclones is always less than that of the gaseous phase or the fluid phase of the fluidized bed in which they are installed) are necessary conditions for the embodiment to work. The Examiner must appreciate that for a cyclone separator system to work, one can not simply arbitrarily select a variety of metal vessels and pipes and put them together. In Applicant's embodiment, the presence of catalyst in the fluidized bed above the junction, as indicated in Figure 2 as well as in the specification itself, and as now more specifically in claim 1, that is, that the single leg (26) is immersed in the fluidized bed, is relevant to the operational configuration of the invention.

Applicant, when conceiving the present invention, used, as a part of the development process, experienced gleaned from a previous patent application (PI9603898-5 A), commonly assigned with the present application and cited in the state

of the art of the specification of the present application. The system of PI9603898-5, when tested in pilot plants, presented a very low performance as to the collection efficiency. Applicant's tests indicated that the first-stage dip leg should be inclined, to prevent a gas flow towards the second-stage cyclone dip leg and that the guarantee for this phenomenon not to occur is given by the presence of a catalyst above the junction of the two legs, using the concept of communicating vessels. Further, Applicant discovered that the presence of a moveable-type termination causes instability in the functioning of the system, because its presence breaks the principle of communicating vessels between fluidized bed, single leg and in-series cyclone leg, gaseous phase of the vessel where the cyclones are installed, cyclones and the first-stage cyclone inlet. The cited prior art in no way teaches these problems, which were recognized by Applicant, much less Applicant's solutions.

With regard to the Examiner's arguments commencing from the second paragraph of page 4 to the first paragraph of page 5 as to why the cyclone legs are inclined, Applicant respectfully disagrees with the Examiner's argument that no benefit arises using any of the leg configurations of either Owen or Stine. Firstly, a comparison of these two patents clearly evidence Applicant's position that Figure 1 of Owen was simply the result of graphical art of simplification of the configuration of cyclones (65) and (67) for the following reasons:

1. Owens' patent mentions discharging catalyst from cyclones 65 and 67 by legs into the fluidized bed 73, by legs 69 and 71. At no point does it mention discharging solely by a single leg. Furthermore, it mentions "one or more" legs discharging into the fluidized bed 73:

> stripping zone 43. The suspension in riser regenerator 51 is passed through cyclone separation equipment represented by separators 65 and 67 sequentially connected wherein catalyst particles are separated from regeneration flue gases. The separated and partially regenerated catalyst separated by cyclonic means 65 and 67 is conveyed by one or more catalyst dip legs 69 and 71 into a fluid bed of catalyst 73 being further con-

2. Applicant's embodiment uses a leg configuration similar to Stine's legs, since for someone skilled in the art with basic knowledge and common-sense of engineering, the vertical leg has to be that of the first-stage cyclone – the flow rate in this first-stage cyclone is about 20,000 times the flow rate in the second-stage cyclone leg. Therefore, Owens patent, assigned to the well-known Mobil Oil Corporation, would never make the opposite, unless it were for a graphical simplification of the drawing. If they were interested in the flow, they would never make something with a total lack of engineering common-sense and showing a total unfamiliarity with the technique of catalyst flow in cyclone legs.

3. Applicant made its embodiment with the leg of first-stage in the vertical due to the negative results obtained in patent application P19603898-5A, cited in the state of the art of the present application. While Applicant did not mention this in the present specification, certainly in the April 2008 response to the Official Action, Applicant was first to disclose why it is advantageous to use the leg of the first stage in the vertical and the leg of the second stage cyclone inclined in the junction in relation to loss of efficiency of collection due to the gas flow towards the leg of the second-stage cyclone if the assembly was made the other way around.

4. Applicant didn't mention in the specification the advantage of the leg angles of cyclones in the junction, but Figure 2 is very clear in this respect, disclosing that the first-stage leg must be vertical.

With regard to the Examiner's statements based on the Stine patent, it is respectfully noted that the embodiment in Stine's patent is structurally different from the present application, for at least the following reasons:

a) The single figure in the Stine patent is meant for first-stage cyclones connected to the riser. Therefore, the first-stage cyclone (16) inlet is not in direct communication with the fluid phase of the fluidized bed, as is the case in the Fig. 2 embodiment in Applicants' present application. A single leg formed from the junction of the two legs of cyclones in series is state-of-the-art and duly acknowledged in the present application. The embodiment in the present application is about a closed circuit of gas recirculation and about catalyst entrained between the fluidized bed and the in-series cyclones, without the existence of piping to carry catalyst and gas. There exists a direct communication between the parts: diluted phase and dense phase of the fluidized bed, the first-stage cyclone inlet, and the discharge of the single leg. Therefore, any change in any variable: of the dense phase (fluidized bed), of the dilute phase, of first- and second-stage cyclones, has its effect propagated to all fluid media, and there is no mechanism of artificial regulation that can prevent the propagation of the effect.

b) The communication between the gaseous phase in the fluidized bed vessel and the cyclones in series is made through a line 29 a first end of which is in surge chamber 24 and a second end of which is located in the transfer line 19, between the outlet of the first stage cyclone 17 and the inlet of the second stage separator 20. The function of the transfer line 19 is to remove the air of fluidization of the fluidized bed of the surge chamber 24 in which the cyclones in series discharge the catalyst, standpipe 18. In the single figure of the Stine patent, it is clearly indicated that the single leg of Stine 18 discharges the catalyst collected from both legs in the fluid phase of the surge chamber 24, which is totally different from the present case, in which the single leg of cyclone 26 discharges inside of the dense phase or the fluidized bed 31 through an open termination.

c) To enable the fluidization gas to flow from surge chamber (24) to the second-stage cyclone inlet it is necessary to use a control network, as the single figure of Stine shows. The control network keeps the pressure differential between the top of the leg of the first-stage cyclone 17 and the fluid phase of the fluidization surge chamber 24, by upper pressure tap 34 and by pressure tap 36 to guarantee the catalyst flow from the first-stage cyclone to inside of the surge chamber 24 that contains the fluidized bed. That is, fluidization gas does not flow from surge chamber 24 to the inside of cyclone leg 18. Any expert in the field with a basic knowledge knows that this type of configuration has good performance as long as the pressure differential is positive between the top of the leg of the first-stage cyclone 34 and the fluid phase of the surge chamber 24, which has a fluidized bed; and this is what is claimed in Stine. Applicant agrees with the Examiner, as to the possibility of operation of the embodiment of Stine with the negative pressure differential, but the catalyst losses by the cyclones would be unacceptable, even at the time of the patent (1966) for the following reason:

Gas would flow preferentially by the single leg of Stine 18 towards the legs of first- and second -stage cyclones 18 and 21, instead of flowing by line 29 which removes the fluidization gas of surge chamber 24. This is due to the presence of the control valve 30 or to the operation of the control network 33.

d) The Stine embodiment only allows the operation of the fluidized bed in low flow rates of fluidization gas or in low surface speeds. This is because the fluidization gas and entrained catalyst are fed in the second-stage cyclone inlet, and this is the only stage to separate to the entrained catalyst from the fluidization gas, therefore the losses of catalyst can be unacceptable, environmentally and economically. Applicant's embodiment, in accordance with Figure 2 and as claimed in claim 1, allows the operation of the fluidized bed at flow rates of fluidization gas or at surface speeds equal to the ones practiced in FCC regenerators (it is known that the catalyst flow rate carried to cyclones in regenerators is of the same order as that of a riser), and therefore entrained catalyst is fed to the first-stage cyclone.

e) Figure 2 of the present application shows the first-stage cyclone inlet 21 communicating directly with the gaseous phase of the fluidized bed 9, with the junction 25 of the legs of two cyclones being located inside the dense phase of the fluidized bed where the single leg 26 discharges the separated catalyst, and with the level of catalyst inside of the legs of cyclones above the junction 25. Therefore, in Applicant's embodiment, all the fluidization gas passes necessarily or preferentially by the first-stage cyclone inlet, because said inlet communicates or is installed in the fluid phase of the fluidized bed. This remark refutes, once and for all, the Examiner comments because the Stine embodiment feeds fluidization gas in the cyclone second stage through the control network in a way different from Applicant's embodiment, which uses the two cyclone stages to carry out the separation of the catalyst entrained by the fluidization gas.

f) Lastly, in Applicant's embodiment, all the fluidization gas of the surge chamber where the single leg has its discharge passes necessarily/preferentially by the cyclone first stage. That is a differentiating characteristic in relation to the Stine embodiment, which sends this same stream to the second stage cyclone inlet, and this operation has to be monitored/controlled through the control network with its valves. The presence of the control network is another differentiating feature, for Applicant's embodiment uses the fluidodynamic balance or the concept or principle of communicating vessels between: fluidized bed, single leg with open termination, fluid phase of the fluidized bed, dense phase of the fluidized bed, and the cyclones first stage inlet. Therefore it is a self-regulated system for the entire range of fluidization flow rate or surface velocity for which the set of cyclones in series is designed.

With regard to the Examiner's arguments as presented at the second paragraph of page 5 to the first paragraph of page 6, as to why these cyclones are negative pressure ones and the catalyst level above the dip legs junction, Applicant respectfully disagrees with the Examiner's argument, since the Examiner has not presented any

state of the art evidence showing an embodiment as claimed by Applicant. Those differences are detailed as follows:

Applicant claims that its device is meant for cyclones in series and both being of the negative pressure type in relation to the vessel where they are installed. With Figure 2 of the present application, it is indicated that the first-stage cyclone inlet is the one that receives all the fluidization gas as well as entrained catalyst coming from the fluidized bed in which the single leg discharges the catalyst separated in the stages of the in-series cyclones. In all the cases that the Examiner presented, the gas and the entrained catalyst come from a riser connected in the first-stage cyclone inlet, and, therefore, there is no possibility that (a) the fluidization gas, from the bed where the single leg discharges the catalyst and (b) the catalyst entrained by this gas, be fed in the first-stage cyclone inlet. In the Owen patent, a third cyclone is used only to separate the fluidization gas used in the fluidization of the fluidized bed where both first- and second stage cyclones are installed. In Stine's patent this gas and entrained catalyst is fed to the second-stage cyclone inlet, with all the inconveniences described above.

The patent of Owen does not teach anything on the structural limitations of the leg junction. Actually it never recites junction of legs. There is only the figure which the Examiner uses as a base to generate several of his own conclusions as to the way it allegedly works. The Examiner cites patent law, in that the state of the art must teach all the structural limitations of the embodiment. As a matter of fact, the condition that the catalyst level in the cyclone legs has to be above the junction really is a structural limitation necessary if the present application is to work, and not only a casual selection of operational conditions as the Examiner asserts. If the catalyst level is not above of the junction, the embodiment will lead to losses of catalyst which render the embodiment technically and economically unfeasible, since the cyclones would operate at a very low collection efficiency. The present application, through Figure 2, discloses this need for a level of catalyst above that of the junction, whereas Owen shows

nothing about it and in its specification he discloses one or more legs discharging catalyst in the bed.

Another very important point not taught in Owen is regarding the type of single leg termination. In the present application, it is limited to one of the open-type devoid of movable parts. It cannot be of just any type, as the Examiner asserts, because, as commented previously, the concept only functions with an advantageous cyclone collection efficiency if there are open communicating vessels, between fluid phase and dense phase of the fluidized bed, the first-stage cyclone inlet, cyclones, cyclones legs, junction of the cyclones legs, and single leg.

Relative to the Examiner's "Response to Arguments" in Item 7, Applicant respectfully disagrees because the fact that both cyclones are negative pressure in relation to the vessel when Applicant's embodiment is installed, in accordance with Figure 2, is due to the first stage cyclone inlet not being connected to any riser which feeds gas and catalyst. The Examiner was mistaken when the Examiner affirms that the embodiment of Owen can operate in positive pressure, just by modifying the flow rate conditions, for example. This is only possible due to the existence of a third cyclone in Owens' figure, independent of the other two in the series, and this third cyclone is connected to the riser in order to be able to receive/to accommodate flow rate variations. In Applicants' embodiment, on the other hand, the fluidization gas always will feed the cyclone first stage, since its inlet is in direct communication with the fluid phase of the fluidized bed (gaseous phase), and, therefore, there is a risk of the gas to prefer to go to the single leg. This is the reason why an embodiment similar to Applicants' was never claimed in Owen. In Owen, a third cyclone exists and in Stine a control valve exists to protect the leg/gaseous phase pressure differential. Probably everyone else at the time of the invention thought Applicant's configuration impossible to carry out.

As to the Examiner's position advanced on page 13, second paragraph, where the Examiner contends that the specification said that the terminal configuration is what solves the problems and improves the sealing, Applicant only pointed out that a good choice of final termination of the open type devoid of movable parts would constitute an "improvement" in the aspects of sealing single leg and the legs of the first-stage- and second-stage cyclones. At no moment was it asserted that the problem is not solved by the inclination of the legs. Both things contribute to the success of the invention. Also, all the text that the Examiner analyzes before this deals with the importance of the first-stage leg, with a high flow rate, to be vertical and of the second-stage leg, with low flow rate (around 1/20,000 of the first-stage leg flow rate). This is mainly to prevent problems of sealing in the legs of first- and second-stage cyclones due to failure in the junction. Failures may arise from a flow of gas from the first-stage leg to the second-stage leg. The termination in the final part of the single leg also affects the results, since gas from the fluidized bed may enter the legs of first- and second-stage cyclones.

For all the reasons advanced above, reconsideration and withdrawal of the rejection over Owen, Perry's, Stine and Zenz is requested.

Claim 7 was rejected under 35 USC 103(a) as being unpatentable over Owen in view of Perry's handbook, Stine and Zenz and further in view of Braun. Applicant respectfully traverses this rejection.

Indeed, Applicant respectfully disagrees with the Examiner's arguments because, as explained above, Applicant's embodiment does not have anything to do with the state of the art given by Stine and/or Owen. Therefore, the use of an open termination type, preferentially of the arched type, was meant to enable the working of Applicant's embodiment. Besides, Applicant's result of a better collecting efficiency were <u>not</u> predictable.

Claim 3 was rejected under 35 USC 103(a) as being unpatentable over Owen, Perry, Stine, Zenz, Braun and further in view of Danielsen. Claim 3 is submitted to be patentable over the primary combination for the reasons advanced above. The Examiner's further reliance on Danielsen does not overcome the deficiencies of the primary references noted above. In fact, Danielsen also teaches away form the invention by providing a movable sealing part at the distal end of the leg structure. It is therefore respectfully submitted that claim 3 is also allowable over the prior art of record.

Claims 4 and 5 were rejected under 35 USC 103(a) as being unpatentable over Owen in view of Perry, Stine, Zenz, Braun, Luckenbach and Linden. These claims are submitted to be patentable over the primary combination for the reasons advanced above. The Examiner's further reliance on Luckenbach and Linden does not overcome the deficiencies of the primary combination noted above.

It is further respectfully submitted that Lukenbach does not teach or suggest that the radius curved portion of Owen/Perry's could or should be formed from a plurality of straight pipe sections. In the case of Lukenbach, a single pipe part 14 is provided at an incline. Lukenbach does not teach that his inclined part is formed from a series of straight pipe sections; only a single pipe section is shown forming this component. Likewise, Lukenbach provides no teaching or suggestion whatsoever regarding using straight pipe sections to form a radius curve. In fact, if Luckenbach's teachings were followed in Owen/Perry's, then Owen/Perry's would provide a single straight segment at an incline as depicted in Lukenbach, rather than the single curved pipe. It is therefore, respectfully submitted that any proper combination of Owen/Perry's and Lukenbach would still not anticipate nor render obvious the plural straight portions applicant claims in claims 4 and 5.

It is further respectfully noted that claim 5 provides that the succession of straight tube sections directs the mass flow against phase particles into a plane

orthogonal to the ascending gas flow. This is not true of Perry's as Perry's clearly directs mass flow at an acute angle to and in the same direction as the gas flow, as understood from Figure 2. Thus, Perry's does not teach or suggest a curve directing mass flow in a plane orthogonal to the gas flow direction. Lukenbach also fails to teach or suggest directing flow in a direction orthogonal to the gas flow because Lukenbach teaches mass flow directed downwardly at an acute angle to and in the opposite direction from the gas flow. Thus, any proper combination of Perry's and Luckenbach does not anticipate nor render obvious claim 5 either.

It is therefore respectfully submitted that claims 4 and 5 are also patentable over the prior art of record.

Claim 6 was rejected under 35 USC 103(a) as being unpatentable over Owen in view of Perry, Stine, Zenz, Braun and Jahnke et al.

With regard to the Jahnke reference, the Examiner committed another slip of interpretation. Jahnke relates to entrainment of gas from inside a leg into the bed differently from what the present patent application deals with. Moreover, in this patent the author teaches the need for using movable valves to prevent this entrainment, even with the legs being immersed inside the fluidized catalyst bed. Additionally, the Examiner should note that the main source of loss of efficiency is the by-pass of gas of the leg of the primary cyclone (23) directly to the leg of the secondary cyclone (24), a thing that happens through the junction of these legs (25), what leads to an almost total loss of the efficiency of the secondary cyclone. However, if the catalyst level is above the junction inside these legs, as is the case with the invention, this problem does not exist, and better still, there is a substantial improvement in the sealing of the leg of the secondary cyclone, leading to an expressive increase in the collection efficiency of the secondary cyclone.

As to page 9 of the Examiner's remarks, last paragraph, the Examiner must understand that in industrial equipment, there exists the limitation of the total length of

a piece of equipment, either for mechanical, economic, physical, chemical, electrical, spatial aspects, and legs of cyclones cannot have limitless lengths. The Examiner says that selecting an appropriate length would also be obvious on the basis of "on the basis of suitability for the intended use and absent a showing of unexpected results".

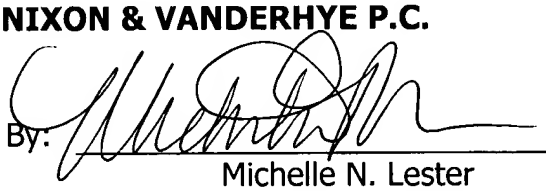
However, Applicant has provided in detail at pages 9-10 of the August 21, 2007 response, incorporated herein by reference, the significance of applicant's length limitation, which analysis is completely lacking in the art the Examiner has cited.

For all the reasons advanced above reconsideration and withdrawal of the Examiner's rejection of claim 6 is solicited.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in condition for allowance and an early Notice to that effect is earnestly solicited.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

By: 

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